

Application No. 10/764,422

REMARKS/ARGUMENTS

The above-identified patent application has been reviewed in light of the Examiner's action dated August 5, 2005. Claims 46-55 have been withdrawn, and claims 56, 59, 62, 63, 65, 68, 75 and 77 have been amended, without intending to abandon or to dedicate to the public any patentable subject matter. Claim 91 is new. Accordingly, claims 56-91 are pending. As set out more fully below, reconsideration and withdrawal of the objections to and rejections of the claims are respectfully requested.

Claim 68 stands objected to because of an informality. In the amendments set forth above, claim 68 has been amended to address the noted informality. Accordingly, reconsideration and withdrawal of the objection to claim 68 are respectfully requested.

Claims 56-59, 66-67, 75-76, and 78 stand rejected under 35 U.S.C. §102 as being anticipated by U.S. Patent No. 3,346,865 to Jones, Jr. ("Jones"). In order for a rejection under 35 U.S.C. §102 to be proper, each and every element as set forth in a claim must be found, either expressly or inherently described, in a single prior art reference. (MPEP §2131). However, each and every element of the rejected claims, as amended, cannot be found in the Jones reference. For instance, Jones does not describe a dielectric having relieved portions that do not contain a conductive material. Therefore, reconsideration and withdrawal of the rejections of claims 56-59, 66-67, 75-76, and 78 are respectfully requested.

The Jones reference is generally directed to a slot antenna built into a dielectric radome. Wave guides are created for an array by drilling holes 13 through the radome surface at close intervals in a rectangular pattern. The holes 13, as well as the exterior and interior surfaces 14 and 15 enclosed by them, are electroplated with copper or other suitable material. (Jones, col. 2, lines 12-17.) The electroplated holes form the side and end walls of the wave guide (Jones, col. 2, lines 28-29.) Accordingly, it can be appreciated that Jones provides holes in a dielectric that are electroplated with a conductive material that is an extension of conductive material forming the exterior 14 and interior 15 surfaces of the Jones device, in order to define the boundaries of a wave guide.

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Claim 56 is generally directed to an antenna apparatus. The antenna apparatus comprises a dielectric material having at least a first relieved portion, wherein a dielectric constant of the dielectric material is modified in an area of the at least a first relieved portion. Furthermore, amended claim 56 recites that the at least a first relieved portion defines a volume that does not contain a conductive material. Accordingly, it can be appreciated that the antenna apparatus recited by claim 56 comprises relieved portions in a dielectric material that are not electroplated or that do not otherwise contain a conductive material. Therefore, claim 56 is not anticipated by Jones, and the rejections of claims 56-59 should be reconsidered and withdrawn.

Claim 75 is generally directed to an antenna apparatus. The antenna apparatus includes means for radiating at least a first radio frequency, and means for providing at least a first dielectric constant adjacent said means for radiating. Claim 75 further recites that the means for providing at least a first dielectric constant includes a relieved portion adjacent the means for radiating. The antenna apparatus of claim 75 also recites a means for providing a ground plane on a side of the means for providing at least a first dielectric constant opposite said means for radiating. As amended, claim 75 further recites that the means for radiating and the means for providing a ground plane are not electrically interconnected to one another by an electrically conductive material passing through the means for providing at least a first dielectric constant at the first location. Accordingly, claim 75 and dependent claim 76 should be allowed over Jones for at least the reason that Jones requires an electrical connection passing through the relieved portions formed in that reference as dielectric, whereas claim 75 prohibits such a connection. Reconsideration and withdrawal of the rejections of claims 75 and 76 as anticipated are respectfully requested.

Claims 60-61 are rejected under 35 U.S.C. §103 as being unpatentable over Jones in view of U.S. Patent No. 6,114,998 to Scheffe, et al. ("Scheffe"), and claims 68 and 73-74 stand rejected under 35 U.S.C. §103 as being unpatentable over Jones in view of U.S. Patent No. 6,529,166 to Kanamaluru ("Kanamaluru"). In order to establish a *prima facie* case of obviousness under §103, there must be some suggestion or motivation to modify the reference or to combine the reference teachings, there must be a reasonable expectation of success, and the

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prior art reference or references must teach or suggest all of the claim limitations. (MPEP §2143.) For at least the reason that the prior art cited does not teach, suggest or describe a dielectric with a relieved portion that does not contain a conductive material, the rejections of claims 60-61, 68, and 73-74 should be reconsidered and withdrawn.

Claim 60, 61, 68 and 73-74 generally depend from claim 56. As noted above, claim 56 is allowable over the Jones reference for at least the reason that claim 56 recites that the at least a first relieved portion defines a volume that does not contain a conductive material. In contrast, Jones requires that the holes discussed in that reference be plated with an electrically conductive material. Furthermore, it is noted that neither the Scheffe nor the Kanamaluru references discuss a dielectric having at least a first relieved portion. Instead, Scheffe is directed to an electrically steerable antenna, and appears to be cited for disclosing a triangular pattern of elements. The Kanamaluru reference is directed to an ultra-wide band adapted antenna and is cited for discussing interlaced first and second pluralities of antenna elements. Therefore, the rejections of claims 60, 61, 68 and 73-74 as obvious should be reconsidered and withdrawn.

Applicants note that the Office Action includes references to "John, Jr." and "Munson, et al.", but does not include any such references in the notice of references cited included with the Office Action. Applicants respectfully request that the Examiner formally cite such references, or clarify that their inclusion in the Office Action was a typographical error.

New claim 91 is generally directed to an antenna apparatus. The antenna apparatus includes at least a first radiator element and a dielectric material interconnected to the at least a first radiator element. Claim 91 further recites that the dielectric material includes a first surface, and a second surface opposite and substantially parallel to the first surface. The dielectric material also includes at least a first relieved portion, wherein an electrically conductive material does not extend from a first one of the first and second surfaces to a second one of the first and second surfaces through the at least a first relieved portion. Accordingly, claim 91 should be allowed over the cited references for at least the reason that those references do not teach, suggest or describe an antenna apparatus with a dielectric material having relieved portions, and in which

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an electrically conductive material does not extend from a first surface of the dielectric material to a second surface of the dielectric material.

Claims 56-59, 66-76, and 78 stand rejected under the judicially created doctrine of obviousness type double patenting as being unpatentable over claims 1-5, 7-8, 10 and 16 of U.S. Patent No. 6,795,020. Submitted herewith is a terminal disclaimer with respect to commonly assigned U.S. Patent No. 6,795,020. Accordingly, it is submitted that the rejections of claims 56-59, 66-76, and 78 under the doctrine of obviousness type double patenting should be reconsidered and withdrawn.

Applicants note with appreciation that claims 79-90 are allowed.

Applicants additionally note with appreciation the Examiner's indication that claims 62-65 and 77 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. In the amendments set forth above, claims 62, 63, 65 and 77 have been rewritten in independent form, to place claim 62-65 and 77 in condition for allowance. Applicants further note that claim 77 has also been amended to clarify the relationship between the recited elements. Accordingly, the objections to claims 62-65 and 77 should be reconsidered and withdrawn.

The title and the field of the invention have been amended, and a replacement paragraph for the abstract has been supplied (on and attached sheet), in view of the subject matter of the pending claims. The cross-reference to related applications section of the application has been amended to recite the patent number of the parent application to this divisional application. No new matter has been added by these amendments. Entry of these amendments and of the replacement abstract are respectfully requested.

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The application now appearing to be in form for allowance, or early notification of same is respectfully requested. The Examiner is invited to contact the undersigned by telephone if doing so would expedite the resolution of this case.

Respectfully submitted,

SHERIDAN ROSS P.C.

By: 

Bradley M. Knepper
Registration No. 44,189
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

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